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Foods Factor in New Medications

by Christopher Nelson

Foods May Factor in Developing New Medications

Food isn't necessarily the bad guy. In fact, understanding how nutrients in food affect cell communication could hold the key to a new generation of medications to treat disease, according to Thunder Jalili, Ph.D., assistant professor in the College of Health.

Jalili, who joined the Utah faculty last year after completing postdoctoral fellowships at Harvard and University of Cincinnati medical schools, is studying cell signaling in cardiac hypertrophy, the unwanted growth of heart cells. The condition is a side effect of a heart attack or chronic high blood pressure.

"Once the heart starts on this path of growth, it is difficult to stop or slow it down. We want to find foods or factors in food that might slow this growth," he said.

Research designed to explain nutrition at the molecular level is not a new concept, but Jalili says there's still much that is not understood. Soy, for

example, is thought to help reduce the risk of cancer and heart disease, yet understanding of the biochemical mechanisms involved is sketchy at best.

"Thinking long term, if we can figure out which bioactive compounds in food are harmful or beneficial, it could impact a variety of diseases. Take protein kinase C (PKC). It's fairly early in the signaling process, and it seems to be involved in quite a few responses in the cell. We know when heart cells grow, PKC is activated, and it has been implicated in cancer," he said.

The challenge is to identify protein activators downstream from PKC, understand how they are turned on, how they affect other processes in the cell and what factors in food may modify those pathways.

"Cell signaling, in essence, is like a big game of telephone. One receptor picks up a signal and tells a protein that tells another protein and so on until you end up activating transcription factors, which specifically bind the DNA," he said.

Like all research, he says, "it's just a matter of using every tool at your disposal to see if your ideas on paper will hold up in real life."

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